WHAT IS CLAIMED IS:

1.   An envelope generator, comprising:

an input terminal for having a signal inputted therein;

a first integrator for generating intermediate state of envelopes with a first attack time and a first release time in response to changes in level of said signal inputted through said input terminal to impart said intermediate state of envelopes to said signal;

a second integrator for respectively modifying said intermediate state of envelopes into final state of envelopes with a second attack time and a second release time in response to changes in level of said signal imparted said intermediate state of envelopes; and

an output terminal for outputting said signal with said final state of envelopes therethrough.

2.   An audio compression apparatus, comprising:

an input terminal for having an audio signal inputted therein;

a sampling element for periodically sampling said audio signal to obtain an absolute value in level of said audio signal;

a subtracter for acquiring a difference between said absolute value and a predetermined threshold value;

a gain generator for generating a gain signal based on said difference between said absolute value and said predetermined threshold value;

an envelope generator including a first integrator for generating intermediate state of envelopes with a first attack time and a first release time in response to changes in level of said gain signal to impart said intermediate state of envelopes to said gain signal, and a second integrator for respectively modifying said intermediate state of envelopes into final state of envelopes with a second attack time and a second release time in response to changes in level of said gain signal imparted said intermediate state of envelopes;

a multiplier for multiplying said audio signal by said gain signal with said final state of envelopes; and

an output terminal for outputting said audio signal multiplied by said gain signal therethrough.

3.   An audio expansion apparatus, comprising:

an input terminal for having an audio signal inputted therein;

a sampling element for periodically sampling said audio signal to obtain an absolute value in level of said audio signal;

a subtracter for acquiring a difference between said absolute value and a predetermined threshold value;

5   a gain generator for generating a gain signal based on said difference between said absolute value and said predetermined threshold value;

an envelope generator including a first integrator for generating intermediate state of envelopes with a first attack time and a first release time in response to changes in level of said gain signal to impart said intermediate state of envelopes to 10   said gain signal, and a second integrator for respectively modifying said intermediate state of envelopes into final state of envelopes with a second attack time and a second release time in response to changes in level of said gain signal imparted said intermediate state of envelopes;

a multiplier for multiplying said audio signal by said gain signal with said 15   final state of envelopes; and

an output terminal for outputting said audio signal multiplied by said gain signal therethrough.

4.   An envelope generation method, comprising:

20   a first step of having a signal inputted;

a second step of generating intermediate state of envelopes with a first attack time and a first release time in response to changes in level of said signal inputted in said first step;

a third step of respectively modifying said intermediate state of envelopes 25   into final state of envelopes with a second attack time and a second release time in response to changes in level of said signal imparted said intermediate state of envelopes; and

a fourth step of outputting said signal with said final state of envelopes.

30   5.   An audio compression method, comprising:

a first step of having an audio signal inputted;

a second step of periodically sampling said audio signal to obtain an absolute value in level of said audio signal;

a third step of acquiring a difference between said absolute value and a 35   predetermined threshold value;

a fourth step of generating a gain signal based on said difference between said absolute value and said predetermined threshold value;

a fifth step of generating intermediate state of envelopes with a first attack time and a first release time in response to changes in level of said gain signal to impart said intermediate state of envelopes to said gain signal;

a sixth step of modifying said intermediate state of envelopes into final state of envelopes with a second attack time and a second release time in response to changes in level of said gain signal imparted said intermediate state of envelopes;

a seventh step of multiplying said audio signal by said gain signal with said final state of envelopes; and

an eighth step of outputting said audio signal multiplied by said gain signal.

6.   An audio expansion method, comprising:

a first step of having an audio signal inputted;

a second step of periodically sampling said audio signal to obtain an absolute value in level of said audio signal;

a third step of acquiring a difference between said absolute value and a predetermined threshold value;

a fourth step of generating a gain signal based on said difference between said absolute value and said predetermined threshold value;

a fifth step of generating intermediate state of envelopes with a first attack time and a first release time in response to changes in level of said gain signal to impart said intermediate state of envelopes to said gain signal;

a sixth step of modifying said intermediate state of envelopes into final state of envelopes with a second attack time and a second release time in response to changes in level of said gain signal imparted said intermediate state of envelopes;

a seventh step of multiplying said audio signal by said gain signal with said final state of envelopes; and

an eighth step of outputting said audio signal multiplied by said gain signal.

7.   A envelope generation program capable of being executed by computers comprising:

a first step of having a signal inputted;

a second step of generating intermediate state of envelopes with a first attack time and a first release time in response to changes in level of said signal inputted in said first step;

a third step of respectively modifying said intermediate state of envelopes into final state of envelopes with a second attack time and a second release time in response to changes in level of said signal imparted said intermediate state of

envelopes; and

a fourth step of outputting said signal with said final state of envelopes.

8. A audio compression program capable of being executed by computers comprising:

a first step of having an audio signal inputted;

a second step of periodically sampling said audio signal to obtain an absolute value in level of said audio signal;

a third step of acquiring a difference between said absolute value and a predetermined threshold value;

a fourth step of generating a gain signal based on said difference between said absolute value and said predetermined threshold value;

a fifth step of generating intermediate state of envelopes with a first attack time and a first release time in response to changes in level of said gain signal to impart said intermediate state of envelopes to said gain signal;

a sixth step of modifying said intermediate state of envelopes into final state of envelopes with a second attack time and a second release time in response to changes in level of said gain signal imparted said intermediate state of envelopes;

a seventh step of multiplying said audio signal by said gain signal with said final state of envelopes; and

an eighth step of outputting said audio signal multiplied by said gain signal.

9. A audio expansion program capable of being executed by computers comprising:

a first step of having an audio signal inputted;

a second step of periodically sampling said audio signal to obtain an absolute value in level of said audio signal;

a third step of acquiring a difference between said absolute value and a predetermined threshold value;

a fourth step of generating a gain signal based on said difference between said absolute value and said predetermined threshold value;

a fifth step of generating intermediate state of envelopes with a first attack time and a first release time in response to changes in level of said gain signal to impart said intermediate state of envelopes to said gain signal;

a sixth step of modifying said intermediate state of envelopes into final state of envelopes with a second attack time and a second release time in response to changes in level of said gain signal imparted said intermediate state of envelopes;

a seventh step of multiplying said audio signal by said gain signal with said final state of envelopes; and

an eighth step of outputting said audio signal multiplied by said gain signal.